

This fact sheet reviews the risks and safety of transporting children in a recreational vehicle (RV). The purpose of this fact sheet is to educate child passenger safety professionals, so they can more effectively advise parents who inquire about the safety of transporting children in RV's. This fact sheet briefly describes the classes of RV's, Federal Motor Vehicle Safety Standards, overall injury risks among rear passengers, seat belt concerns and existing crash tests, and guidelines for parents to consider. It also provides links to educational material that are available for download and distribution for parents.

In brief, the safety of rear passengers in a "motorized" RV is unclear due exemptions of Federal Motor Vehicle Safety Standard 208 seat belt requirements. RV's are also not required to be crash tested. In a collision, wooden cabinets and bench seats can break apart from the force of the crash. Equipment and storage materials can also become projectiles during a collision and injure passengers. For parents considering purchasing or renting an RV (Class A, B, C, C+, and non-motorized tow-able RV's) they must be aware that RV's are high-profile vehicles meaning they are restricted in high wind conditions and carry significant risks when making sharp turns and backing. Because of the crashworthiness limitations of RV's child passenger safety professionals need to be well informed of these risks before making recommendations to parents.

### RV Class Description



#### Class A

The largest of motor homes that are built on a bus chassis (but not required to meet bus occupant safety standards for rear seating) weigh between 15,000-30,000 pounds. These are not required to meet Federal seat belt standards for rear occupants.



#### Class B

This class is generally van conversions. These weight between 6,000-8,000 pounds. These are required to meet Federal seat belt standard for front occupants and passenger testing but not for rear occupants for this weight class. Some manufacturers meet Federal standards and do independent testing.



#### Class C & C+

This class is constructed on a van chassis and weighs between 10,000-12,000 pounds. These are required to meet Federal seat belt standards for front occupants. But not for rear occupants.

### Federal Motor Vehicle Safety Standards

The National Highway Traffic Safety Administration (NHTSA) generally do not crash test RV's and seat belt requirements may not always apply due to weight variations of RV's that exceed requirements. For example, passenger vehicles required to meet seat belt standards are only those with a weighting less than 10,000 lbs. (4,536 kg).<sup>1</sup> This generally excludes Class-A and C, C+ RV's as their weights are much greater. However Class-B RV's that weight between 8,500 lbs. (3,833 kg) and 10,000 lbs. (4,536 kg) require Type 2 (lap-shoulder) safety belts for all rear seating, with the exception of side-facing seats, that can be equipped with either a Type 1 (lap belt only) or Type 2 belt.<sup>2</sup> Also keep in mind that car seats and booster seats shall never be used rear-facing or on a side-facing bench seat in any RV.

### Overall Injury Risks Among Rear-Seated Passengers

1. RV's are *not required* to have rear occupant crash testing or meet Federal seat belt standards for rear seating (depending on the weight of RV).
2. Some RV's that have lap-shoulder belts in rear seating are not required to meet Federal seat belt standard 208 depending on weight. Many wooden bench seats that have seat belts are anchored either directly onto steel frame of the vehicle or on a steel bar that is then anchored to the steel frame of the chassis. Unfortunately during a collision, the wooden bench supports could collapse from the force of a crash (as observed in the Bailey crash test in the following section).
3. Kitchen equipment and cabinets even when anchored onto the steel frame of the vehicle, during a collision, increases the risk of collapsing or becoming a projectile. In addition of storage supplies can also become projectiles and injure occupants.

## RV Seat Belt Concerns for Child Occupants & Existing Crash Tests

While many classes of motor homes have lap belt only or lap-shoulder belts in the dinette and benches, these often can give a false sense of security. Whereas these are not required to be crash tested and depending on the weight of the RV might not need to meet Federal seat belt standards. As noted earlier, during a collision wooden supports can collapse causing serious injury to passengers. There are two companies that voluntarily do occupant testing of their RV's, one in the United Kingdom (Class C) and one in the United States (Class B). These tests are not specifically for child restraint systems, but demonstrate the severity of injury risk to rear-seated occupants of RV's.



Bailey RV Crash Test (U.K.)

In 2011 [Bailey motor homes](http://www.outandaboutlive.co.uk/Motorhomes/News/Manufacturers/Bailey-crash-tests-motorhomes-to-improve-safety/_ch1_nw2629_pg1), a company in the United Kingdom, voluntarily began conducting crash tests with adult and child crash test dummies to confirm the need to make safety modifications for occupants. Their tests found that dinette benches collapsed and occupants were thrown from their restraint systems causing serious injury. This demonstrates that even when seat belts are anchored into the frame of the vehicle, during a collision, the wooden bench supports break apart and restraint systems fail to secure passengers. Similarly with a child restraint system, while these provide additional protection, when the bench support collapses carries an increased injury risk.

[http://www.outandaboutlive.co.uk/Motorhomes/News/Manufacturers/Bailey-crash-tests-motorhomes-to-improve-safety/\\_ch1\\_nw2629\\_pg1](http://www.outandaboutlive.co.uk/Motorhomes/News/Manufacturers/Bailey-crash-tests-motorhomes-to-improve-safety/_ch1_nw2629_pg1)



Roadtrek Class B Crash Test

[Roadtrek Motorhomes, Inc.](http://www.roadtrek.com/safetyfeatures.aspx), a company in the United States conducts its own crash tests on Class B RV's. However specifically for adult passengers for head protection, seat belt testing, and adult passenger seating. However not for child occupants or child restraint systems. Some of their cabinets are anchored into the vehicle frame and some into the floor. Select the image above to view their tests. <http://www.roadtrek.com/safetyfeatures.aspx>

## GUIDELINES FOR PARENTS: Alternatives to consider while traveling with a child in an RV

- BEST ALTERNATIVE:** Rent or purchase a non-motorized, tow-able RV" (described below), so the child can ride safely while properly restrained in a passenger vehicle that is pulling the RV. Ensuring the driver is experienced and familiar with towing a trailer behind their vehicle. These are high-profile vehicles that are restricted during high winds, inclines, braking, and have difficulties making sharp turns and backing.
- SECOND BEST ALTERNATIVE:** Drive with the child properly restrained in a passenger vehicle and follow the RV (Class A, B, or C)
- LEAST BEST ALTERNATIVE:** For those with a personal RV, have custom made captain chairs that comply with Federal seat belt standards. However keep in mind there is a risk of cabinets and kitchen equipment that could be anchored into the wooden flooring and joists which can break apart during a collision. In addition to other storage items becoming projectiles.

### Non-motorized/Tow-able Recreation Vehicle (RV) Alternatives

To protect passengers, an alternative to motorized RV's is the tow-able RV (fifth-wheel, trailer, tent trailer, truck camper). These are towed with a passenger vehicle. This allows for all passengers to ride in a motor vehicle that complies with Federal seat belt standards so child restraint system can be used more effectively. Each RV below are towed behind a passenger vehicle. The truck camper carries the camper. Keep in mind that even with tow-able RV's, these are also high-profile vehicles meaning they are restricted in high wind conditions and carry significant risks when making sharp turns, backing, speed, etc.. When traveling with infants and toddlers in an RV, see additional RV childproofing tips at [www.ProCarSeatSafety.com](http://www.ProCarSeatSafety.com) Downloadable handouts are also available.



Fifth Wheel



Trailer



Tent Trailer



Truck Camper

Refer parents to [www.ProCarSeatSafety.com](http://www.ProCarSeatSafety.com)

<sup>1</sup> Federal Motor Vehicle Safety Standards and Regulations, Title 49 Code of Federal Regulations Part 571 [<http://www.nhtsa.gov/cars/rules/import/FMVSS/index.htm#SN208>]

<sup>2</sup> Federal Motor Vehicle Safety Standards and Regulations, Title 49 Code of Federal Regulations Parts 571, 585, 586, 589, 590, and 597 Docket No. NHTSA-04-18726 [[http://www.nhtsa.gov/cars/rules/rulings/Anton\\_FRNov16.html](http://www.nhtsa.gov/cars/rules/rulings/Anton_FRNov16.html)]